

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017

TWC3231 – MOBILE AND WIRELESS COMMUNICATIONS

(All sections / Groups)

10 March 2017
3.00 pm – 5.00 pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages with 6 Questions only.
2. Answer ALL questions. All Questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1 [2+2+2+2+2 marks]

- (a) State any TWO initiatives that implemented under Universal Service Provision.
- (b) List any TWO common problems that found in communication channel.
- (c) What are the new services supported by 3G after evolved from 2.5G?
- (d) Describe how a radio receiver extracts its own data in wireless communication.
- (e) What are the physical layer different between IEEE 802.11a and IEEE 802.11b?

QUESTION 2 [4+2+2+2 marks]

- (a) State FOUR advantages for using OFDMA.
- (b) List TWO limited physical security concerns in a MANET compared to a traditional network.
- (c) List TWO known attacks on WLAN.
- (d) List TWO approaches to improve IEEE 802.11 Security.

QUESTION 3 [2+2+2+2+2 marks]

- (a) Describe reactive protocols used in MANET.
- (b) List TWO advantages of Home RF as compared to IEEE 802.11b.
- (c) Describe the meaning of term “Undiscoverable” during Bluetooth inquiry.
- (d) Draw a diagram to illustrate Inter Symbol Interference (ISI).
- (e) What are the names of wireless 3G technologies used in US and Europe.

QUESTION 4 [2+4+2+2 marks]

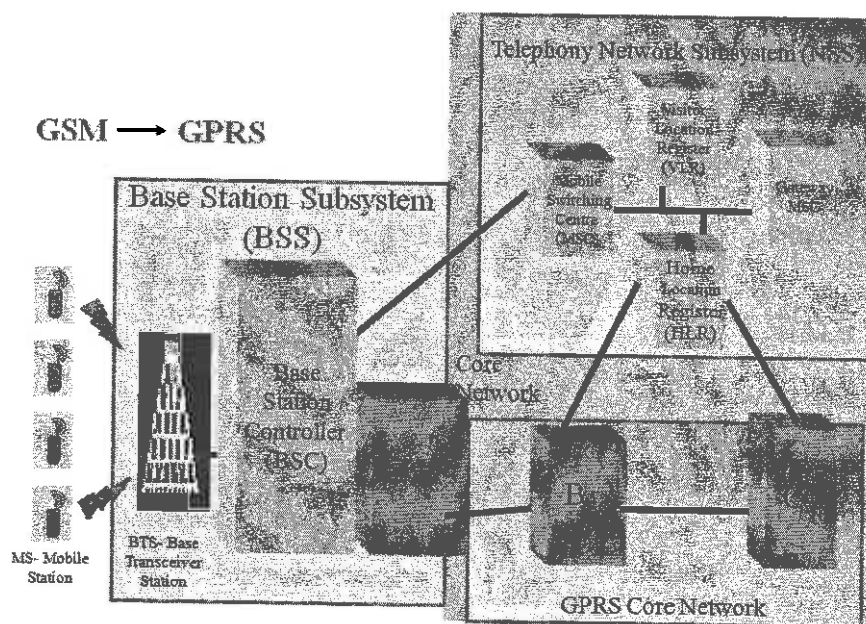
- (a) Design a diagram to illustrate operational states in Bluetooth, where master node, slave node, parked node and standby node are shown.

Continued.....

- (b) By given the height (6.235 KM) and the width (5.85 KM) of an approximate square pattern in a cellular network, draw the cell network diagram. Subsequently, use your answer to indicate the frequency reuse factor of 7. (Mark each of the cell to show difference frequency been used) Note: The radius is 900m.
- (c) Explain the advantages for WiMAX over Wifi.
- (d) In the context of WAP and wireless web access, explain "Data transformation" and "Adaptability".

QUESTION 5 [3+4+3 marks]

- (a) What are the components (A, B and C in diagram) that have been added to GSM network in order to support GPRS? Describe each of the components.



- (b) Explain the differences for hand-over process between cellular network and Wifi.
- (c) Explain the differences for non-line-of-sight (NLOS) service and line-of-sight (LOS) service in WiMAX.

QUESTION 6 [4+4+2 marks]

- (a) Discuss Evolved Packet Core and compose a diagram with FIVE components that found in Evolved Packet Core.

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- (b) Contrast GPS and A-GPS in terms of source of triangulation information, positioning speed, cost and location information reliability.
- (c) Contrast Client-Intercept-Server Model and Client-Agent-Server Model.

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